THE EFFECT OF PROVIDING BAND STUDENTS WITH A SIMPLIFIED SCORE ON THEIR PERFORMANCE QUALITY AND PERCEPTIONS OF THEIR EXPERIENCE

By

Steven J. Hutchison

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Chairperson Dr. Christopher M. Johnson

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Dr. Martin J. Bergee

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Dr. Paul W. Popiel

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The Thesis Committee for Steven J. Hutchison
certifies that this is the approved version of the following thesis:

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Chairperson Dr. Christopher M. Johnson

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Abstract

The purpose of this study was to evaluate the effect of providing band students with a simplified score on their performance quality and perceptions of their experience. Subjects were students (N = 38) enrolled in two intact high school band ensembles at two different K-12 parochial schools in the Midwest. Subjects learned and performed two pieces of band literature; one with traditional single-line parts and one with an experimental simplified score. Pretest and posttest recordings were made of band performances with each score type and then rated by professional music educators (N = 33). In addition, students filled out a reflective survey about their experience learning and performing the piece with each score type. Rehearsals were also video recorded to observe student and instructor behaviors in relation to the score type used. Results of video analysis and coding did reveal a few significant differences; however, these could possibly be attributed to instructor individuality. Survey results indicated there was no effect of score type on the positivity of a student's perception of the learning experience. However, results did show students liked the new simplified score. The results of the simplified score's effect on performance quality varied between schools and no significant effect of score type was found. However, further analysis suggested there may be more learning potential with the simplified score.

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CHAPTER 1:

INTRODUCTION

The world is full of examples that demonstrate the importance of context. When information is removed from its original context it can often lead to misunderstanding and inappropriate reactions. One of the main goals of education is guiding students to grasp the underlying concepts of specific examples. Educators are constantly looking for ways students can learn to transfer ideas from one example to the next. In music education this is no different. Ideally, musical concepts are addressed in the performance classroom as students encounter them in quality repertoire. Choral ensembles typically read music from a score that visually presents each student's part in its original context. However, most of the information students have available to them in the instrumental ensemble is usually limited to their own single-line score. Students in the music performance classroom need opportunities to engage with music on a conceptual level. This necessitates thinking about their part in the context of the whole composition.

Beliefs about how students learn have evolved greatly over the past century. The ideal classroom has shifted from being a rigid, teacher-centered training site designed to fill students' minds to a differentiating student-centered environment that encourages independence and creativity. This shift has been based to some extent on the constructivist theory of learning. Constructivists argue that students construct their own knowledge and understanding from their experiences with the world and people around them. This theory focuses on creating an environment and experiences that facilitate student development (Brooks & Brooks, 1999).

Another pillar of constructivist theory is its emphasis on confronting students with complex and authentic problems. Constructivists argue that problems taken out of their original

context change in nature and do not allow the same level of conceptual insight to take place. Conceptual understanding of a problem requires higher-level thinking skills and is the goal of most constructivist instruction. In order to gain a more complete understanding of the problem, students should begin with the big picture in mind.

Unfortunately, there are many demands placed on instructors of music performance classes. Performance is often so highly prioritized that little time can be afforded to teach musical concepts. Conceptual learning is prized for its employment of higher-level thinking skills, but research has shown that less than 3% of music performance class time is spent teaching concepts (Blocher, Greenwood, & Shellahamer, 1997). The National Association for Music Education has recently revised its standards to place more emphasis on conceptual understanding through authentic experiences such as creating, performing, and responding to music (National Association for Music Education, n.d.). Music educators must find a way to incorporate more conceptual learning into their classrooms.

Structuring problems in their authentic context shares much in common with the Gestalt theory of perception. Gestalt psychology maintains that we perceive the world in gestalten, which are indivisible wholes or forms. None of the parts that make up a gestalt have even a percentage of "wholeness" to them. Instead, they derive their meaning and purpose from their place within the context of the whole. Constructivists would therefore agree that presenting students with a gestalt from which they can construct meaning would be much more effective than presenting the student with any one part of the whole (Wiggins, 2001).

One example of a gestalt in the music classroom is the musical score. This graphic representation of the aural gestalt presents the whole composition without dividing it into parts. Experts disagree on the degree of validity of the score as a gestalt apart from the act of

performance, but it may be determined that at the very least it is a communicator of the composer's original idea (Silliman, 1969; Stubley, 1995). The conductor is typically the only person in the music classroom that ever looks at the full score. Research has produced mixed results on the effectiveness of score study (Crowe, 1996; Grunow, 1980; Silvey, 2011; Springer, 2013). At times, judges of music performance also view scores as they evaluate ensembles. Research has also produced mixed results on the score's impact on their evaluations (Droe, 2012; Napoles, 2009; Wapnick, Flowers, Alegant, & Jasinskas, 1993). However, searching for studies about how the score might affect students yields very little. Only one study (Brittin & Confredo, 2015) has been done to evaluate the effect of showing instrumentalists a multiple-line score, and its results suggest a possible benefit from students viewing the entire score.

In the constructivist classroom students are presented with raw data and complex problems from which to construct meaning and conceptual understanding. In the performance classroom, students are expected to learn musical concepts through the act of performing. In order to do this, music educators should use every resource available to them to provide students with opportunities to engage with music on a conceptual level. In the instrumental performance classroom, one resource currently being used exclusively by the conductor is the full score. Providing students access to the raw information contained in the score might enable students to better construct their understanding. In turn, this new understanding could affect their performance quality. Research needs to be done to determine if there is any benefit to presenting instrumental students with the composition being performed in its complex, contextualized form: the score.

The purpose of this study was to evaluate the effect of providing band students with a simplified score on their performance experience. This was measured both in the quality of the

performance as well as their perceptions of their experience. Therefore, the research questions for this study were:

1. Does providing band students with a simplified score affect their performance quality?
2. Does providing band students with a simplified score affect their perceptions of their experience?
3. How are teaching methods affected when students are provided with a simplified score?

CHAPTER 2:

REVIEW OF LITERATURE

Musical understanding is a central goal of music education. Though music educators might agree this is the case, many disagree on the methods of getting students to understand the music. Some argue for direct instruction from a teacher-centered paradigm. Others give students the resources and environment they need to form their own understanding. However, most music classrooms are performance classes by the sixth grade, and the conceptual growth of students is far too often overlooked in these classes. In order to promote a more complete conceptual understanding of music that will augment performance skills, students must be given the time and tools they need. The musical score is one of these tools.

Over the past century there has been a shift in belief as to how students learn. The behavioral conditioning and rote memorization has been slowly usurped by the notion that students actively construct their understanding. While conditioning has held its place through reinforcements, the focus has shifted to a more independent model. Constructivism has provided the theoretical framework to usher in an age of student-centered classroom models, project-based learning, and differentiated instruction. One of the pillars of constructivist theory is that students should be presented with an authentic, complex problem from which to construct meaning. The problem, in its raw and complex form, is an example of a gestalt.

Gestalt psychology holds that we perceive the world in gestalten, or “whole” forms. The individual parts of these wholes are given meaning and purpose by the whole and do not carry the essence of the whole on their own. These parts cannot simply be added together to make any more or less of the gestalt because the gestalt is separate from the sum of its parts. The gestalt is prototypical of the authentic, complex, and raw problem data heralded by constructivists as the

ideal learning tool. To separate the parts of the problem for study or analysis not only eliminates context, but "[does] violence to the facts" (Humphrey, 1924).

The mention of parts combining to form a whole inevitably brings to a music educator's mind the synergy of a performance ensemble. There are several interpretations as to what might represent a gestalt in music. Some propose, as may be most obvious, that the aural performance of a completed composition (Wiggins, 2001). However, others hold that the performance experience is the gestalt and is inseparable from the composition as such (Stubley, 1995). Still others interpret the written score as the best gestalt because it is able to be experienced apart from the constraints of time (Silliman, 1969). In all cases, the score plays a major role in representing, if it is not itself, the gestalt. Researchers have studied the effects of the score on conductors, yielding mixed results as to whether it has any effect on ensemble performance quality (Springer, 2013). Other research on the effects of the score on judges of musical performances has also yielded conflicting results (Droe, 2012; Napoles, 2009; Wapnick, Flowers, Alegant, & Jasinskas, 1993). Only one study (Brittin & Confredo, 2015) has been done on the effect the score has on musicians. The results indicated that giving musicians a multiple line score instead of the traditional single line score might significantly improve their performance quality.

Students actively construct their understanding of music. Students in the music performance classroom need to be given the opportunities to construct meaning for themselves. They do this best when the information is presented in its original, authentic context. In the music performance classroom, this original context is the gestalt represented by the musical score. The score is a powerful tool, but little research has been done on how it might affect the performer when they have access to it. The purpose of this study is to evaluate the effect of

providing band students with a simplified score on their performance experience. This will be measured both in the quality of the performance as well as their perceptions of their experience.

Constructivism

How do we learn? In the early 20th century the most widely accepted view was that learning was a series of stimuli and response training (Wiggins, 2001). Behaviorism empowered teachers to fill their students' minds through rigorous training and exercise. This popular belief was challenged by Jian Piaget.

Piaget is one of the most notable proponents of constructivism. His work in epistemology led him to conclude that learners are actively constructing their own meaning (Brooks & Brooks, 1999). John Dewey, whose works would later lend support to constructivist claims, emphasized the importance of experience in learning (Wiggins, 2001). A student, in Piaget's model of constructivism, learns only when they have experiences from which to construct meaning. Therefore knowledge is not an objective thing to be discovered, but a subjective construction (Berger & Luckmann, 1991).

While Piaget's work focuses mainly on the construction of knowledge in the individual learner, Vygotsky's contributions emphasize the role of social interaction as a means of learning (Cho, 2010). Social constructivism, implicitly titled, asserts that learners construct meaning from the social interactions they have with others. This theory of learning emphasizes the role of dialogue with a more knowledgeable other in constructing meaning. Both Vygotsky and Piaget allege that new experiences must be either assimilated into previously constructed knowledge, or learners must alter their constructs to accommodate for the variance of the new experience. Vygotsky's "Zone of Proximal Development," which has greatly informed modern methods of

education, describes the optimal conditions for learning to be when a student has a balance of new experiences and previously learned concepts (Brooks & Brooks, 1999).

The roles in a classroom are greatly affected by constructivist theory. The teacher is no longer the center of the classroom, nor is the curriculum. Students, as the creators of their knowledge, must be given license to explore their world through active experience and problem solving (Shively, 1995). The teacher in a constructivist classroom must work to provide experiences and environments that are conducive to student learning (Brooks & Brooks, 1999). These learning environments are most conducive to learning when material is presented in its complex, holistic context (Brown, Collins, & Duguid, 1989; Wiggins, 2001). This allows students to explore the material, individually or as a group, and construct their own meaning. The extreme of this student-centered approach places even the choice of curriculum and areas of study in the hands of the students. However, most constructivist classrooms choose a more middle of the road model that emphasizes the interaction between teacher and students, and between students, as well as the individual experience and curiosity of the learner (Cleaver & Ballantyne, 2014).

Fox (2001) has criticized both constructivist theory and its widespread use in education as an extreme reaction to a theoretical traditionalist behaviorism model of instruction. He contended that the idea that constructivism presents a polarized view of the human experience. Learning is active, but can also happen in what most would consider “passive” situations such as reading or listening to a lecture. It also negates any experience when the learner is acted upon by the world. Fox stated the best contribution of constructivism is the context given to instruction based on what the learner already knows. However, he also pointed out the oversimplified claim

that differences in learning are a result of differences in history of learning ignores any discrepancies in innate ability or talent.

The highest level of learning is that of concepts and abstractions (Maclellan, 2005). One study (Blocher et al., 1997) alarmingly found that less than 3% of band class time is spent teaching musical concepts. Pogonowski (1989) suggested this could be attributed to the performance pressure music educators feel, and then pass off to their students. In order to better understand the music, students must move beyond the "what" of music and on to the "how" and the "why" (Morford, 2007). Constructivist theory proposes that students should be exposed to complex, authentic, and open-ended problems from which they can construct meaning. The music classroom is rich with these types of potential learning environments.

The collaborative opportunities presented by a group of students learning a new piece of music allow for active community problem solving. Students who are allowed to communicate with their fellow classmates about the music they are learning engage in reflection on multiple perspectives and differing understandings (Shively, 1995). This kind of communication and problem solving allows students to form conceptual abstractions that can be applied to similar future situations. Conceptual learning is sometimes mistakenly thought of separate from performance. However, some experts suggest that musical performance is in itself a vehicle for conceptual learning:

> The act of 'pulling it all together' and producing the music – understanding what one is supposed to be doing and then executing it accurately – is in itself a problem-solving act; but that is only the beginning. The work of learning how to perform one's part in the context of the ensemble is also problem solving. (Wiggins, 2001, p. 76)

Chamber ensembles are one means many educators have utilized to develop student self-efficacy and independence. As members of a small ensemble, students develop their listening skills and their ability to critique their own playing. These small ensembles require much more individual responsibility than larger ensembles and are student-centered in musical decision-making. When students have the opportunity to make expressive decisions about what they are playing, they are dealing with a complex, authentic, and open-ended problems. Broomhead (2001) argued that the goal of music education should be to promote students' active and constructive learning to help them to become capable, independent performers. In a performance classroom, chamber groups provide opportunities for students to develop their individual understanding of music, and this becomes apparent in both their performance and attitudes toward music (Larson, 2010).

Creating music is another way students construct their understanding in the performance classroom. More so than performance, composition and improvisation require and provide access to a deeper understanding of musical concepts. Since the conceptual understanding of music is aural in nature, these tasks need not be separated from the performance classroom. Improvisation, which has been a staple of jazz education, includes three of the major objectives of music education: performance, listening, and composition. Introducing improvisation in the classroom allows students a chance to explore musical concepts freely. This exploration allows students to adapt or assimilate new experiences rapidly into their constructions of musical meaning (Covington, 1997).

The Gestalt

Max Wertheimer is known by most as the father of Gestalt psychology. His studies originated in Germany when he was intrigued with the effect of apparent motion. The effect of

apparent motion is observed when a series of images progress rapidly enough that they are perceived as moving rather than still. This is the fundamental principle of film. What intrigued Wertheimer, and his test subjects and students Wolfgang Köhler and Kurt Koffka, was our perception of an inseparable whole which determines the nature of its separate parts (Wertheimer, 2014) .

Gestalt is a term borrowed from its original German because of a lack of appropriate English counterpart to represent a singular structure or form, often called a "whole." Koffka said the gestalt was "other than the sum of its parts." This has often been mistranslated as "the whole is greater than the sum of its parts," which is an idea of addition that Koffka did not intend. Gestalt theory suggests that the whole gives meaning to its parts, and that as soon as it is divided it loses its essential nature (Dominowski & Bourne, 1998).

As Koffka explained, the structure of the gestalt is not limited to visual perception but reaches to all experienced phenomena from taste to hearing. One commonly used example of a gestalt is a melody. If ten people were to each sing an individual tone extracted from a melody, the idea of the melody would not be transmitted even in a fractional form. The melody is a gestalt because its individual structures derive their nature from their function within the whole. Koffka (1922) found music to be rich with examples of gestalt theory.

> Music offers any number of examples as to the influence exerted by the general level. Each tone, each harmony, has a specific meaning, inherent in its 'sound' for a given key only; but this meaning changes with the key, so that G is the tonic of G major, but the dominant of C major. (p. 567)

Though gestalt psychology originated as a study of perception, it has greatly impacted the world of education. Constructivism has used its principles as building blocks for pedagogical

methods because its focus on big picture thinking lends itself well to the values of open-ended questions and authentic learning environments that constructivism heralds as its tools par excellence.

Köhler also continued his studies of gestalt psychology into the arena of problem solving. His most famous work (Köhler, 1957) observed an ape obtain a banana outside of its cage using a combination of two tools. The ape had two short poles, neither of which could reach the fruit. After a period of trial and error the ape sat and seemed to contemplate the task at hand. After a moment, it assembled the two poles together into a longer pole and reached the banana. This solution seemed to come all at once after its contemplative period (Dominowski & Bourne, 1998).

This phenomenon of obtaining a solution to a problem all at once has been termed "insight" or "transformative learning" (Cho, 2010; Sternberg, 1998). When a complex problem is perceived as a gestalt, the parts of this problem derive their meaning and significance from the big picture. Constructivists have utilized this concept widely in its emphasis on authentic and complex problem solving. From a constructivist viewpoint, the ape in Köhler's study was constructing new knowledge as it contemplated the complex problem of obtaining the banana. Its previous trial and error phase had failed because it did not take into account the possible interaction of parts as they related to the larger whole. Transformative learning can only be accomplished when a learner is presented with the raw, complex problem from which they can draw insight.

Creativity has often been linked in research to transformative learning and insight. Right brain thinking has been suggested to function holistically, responding to images rather than logical arguments (Mills & Miller, 1986). Studies have also shown that when attempting to

create art, such as poems or sketches, artists almost always have concept of what the resultant bigger picture will be (Patrick, 1941). Creativity demands use of the higher-level concepts of a discipline that are accessed by engaging learners in an authentic learning environment.

Wiggins (2001) asserts that people are best able to construct meaning when information is presented in a holistic context. Other studies on problem solving and the construction of meaning use a macro-micro-macro approach to problems (Chaffin, Imreh, Lemieux, & Chen, 2003; Lane, 2006). Expert problem solvers start with the big picture in mind, focus on its component parts, and lastly their relationship to the big picture (Marín, Pérez Echeverría, & Hallam, 2012). This strategy of problem solving has been shown to exist across an array of disciplines and is comparable to many expert problem-solving strategies in diverse fields (Chaffin et al., 2003). Gestalt theory's contribution to constructivist problem-solving is rooted in its placement of the whole as the starting point, and the assertion that this whole reveals more to us about the details of a problem than they can reveal about themselves. Wiggins (2001) maintains that the processes of learning and understanding how details relate to the bigger picture are inseparable.

The gestalt theory of perception has made an impact on the field of education. In order to transfer the strategies specifically to music education, one question must first be answered; what is a musical gestalt? Koffka (1922) gave the example of a melody as a gestalt because it could not be separated into individual notes without removing the essential nature of the melody. Timbre could be thought of as a gestalt because hearing the composite frequencies separately would not retain the essence of the instrument producing the tone. There are more than likely countless examples of gestalten in music, but a few in particular that merit consideration in the context of the music performance classroom.

In the classroom, students are taught to engage with music through performance of completed compositions. Wiggins (2001) states that musical perception and understanding are both aural in nature. Therefore, one example of a gestalt in music would be the aural experience of a performed composition. Research has shown that when we listen to music our brain processes both the whole structure and its composite parts (Parncutt & McPherson, 2002). However, these parts are defined and given meaning by the composition as a whole. As with many forms of art, musical compositions are created with the bigger picture in mind. Each melody and countermelody, theme and variation, ostinato and continuo is given its meaning and purpose by the gestalt that exists separate from its parts. What we perceive when we listen to music is not the sum of each individual part of the composition. It is something else entirely.

Music is aural in nature, but for at least the past thousand years musicians have been creating representations of it in the form of visual symbols. From the first neumes etched above scriptures to the modern notated score, composers and editors have endeavored to capture the essence of the music on paper. It is important to note here that the visual score that represents music does not precede the aural music. Research suggests that both visual and aural perception of music are linked to an internal "image" of the sound. Therefore, when a composer is writing music with the bigger picture in mind, he or she is writing representations of the aural image already present in his or her mind. One exception to this might be experimental music in which the resultant aural music was neither predicted nor intended. Performers, when attempting to make a performance more "musical" will often take appropriate liberties with the intonation or rhythm of the notated score (Johnson, 1997). Musical notation exists then as a framework for the resultant musical performance. Perhaps it is for this reason that research also indicates that music

students learn concepts best when moving from aural to visual representations instead of the reverse (Parncutt & McPherson, 2002).

The musical score that a conductor studies and uses to conduct an ensemble is therefore a representation of a musical gestalt. However, Silliman (1969) argues that the musical score is not a musical gestalt based on its relation to the performed and experienced composition, but stands on its own as a musical object. Through the score, the musician is able to see more clearly the relationships between the sensuous and structural elements of the music and therefore discern the composer's intents more clearly. Silliman claims that, "As communication, the score represents the composer's message directly without the interference caused by the vagaries of performance" (p. 102). In the performed piece, the listener does not possess the ability to separate music from the flow of time, and therefore might miss some of the structural elements or associations between various parts of the music. Silliman goes on to say that by the visual score, the musician may "dwell on a passage, may move forward and backward from one event to another, and may fix accurately in his mind the relationships inherent in the work" (p. 107).

Stubley (1995) disagrees with Silliman. Stubley argues that Rosenblatt's transactional theory of reading applies to the musical score as well. Roseblatt's theory maintains that it is the act of reading and not the text alone that is the main object in literature. Applied to music, this would make the act of performing music from a score the musical object, and not the score itself. The aesthetic experience of performing music from a score can alter the meanings we construct from the music. Therefore it is the performing experience, not the passive listening to or reading of the music, which holds educational value because it allows musicians to construct their own knowledge of the composition. She also argues that the notes and the way they are performed are nearly inseparable from each other. Even in the aural perception of music, the listener is not

separated from the performance. “The performance is heard not only as a musical whole referred to by a particular score, but also as a performance of that whole by a particular performer or ensemble” (Stubley, 1995, p. 62).

The Score

Though there are varying degrees to which the score is accepted as a gestalt, the fact that it is intended as a representation of an aural gestalt is undeniable. As the musical score functions as a tool in the music classroom, it would follow that its various uses should be backed by research. The extant research on the musical score has primarily focused on its effects on conductors and judges of musical performance. These are the two roles in the realm of music education that most frequently use the score.

Judging a music performance ensemble can be affected by many factors. While many of these factors have been researched, the effect of score use and type has only been the subject of a few inquiries (Droe, 2012; Napoles, 2009; Wapnick, Flowers, Alegant, & Jasinskas, 1993). One study by Droe (2012) investigated the effect of score use on band directors’ written comments of a recorded band performance. His results showed that band directors who used a full score during evaluation tended to write more comments overall and to be much more negative in orientation than those who did not use a score during evaluation. The content of those band directors’ comments that used a score tended to focus on elements of the music represented in the score such as rhythm, dynamic, and pitch errors. Those band directors who did not use a score commented more frequently on issues of tone and intonation, which are non-score related elements of music performance.

The results of a study by Napoles (2009) contradict Droe’s findings. Napoles studied the effects of score use on musicians’ ratings of choral performances. Her results indicated that those

musicians that used a score during evaluation gave higher ratings than their scoreless counterparts. She posits that possible reasons for the better ratings given by musicians using a score could be that either the score distracted them from finding errors in the performance, or that they were more engaged with the performance while reading the score. This suspicion is supported by research by Wapnick, Flowers, Alegant, and Jasinskas (1993), which suggested musicians are less consistent when using the score and a rating scale than with the rating scale alone.

There were several discrepancies between the studies performed by Droe and Napoles. While Droe studied experienced band directors' evaluations of a recorded band performance, Napoles studied college-level musicians' ratings of a live choral performance. The differences in experience level of the evaluators in these studies could have been one reason for the discrepancy in outcome. Years of experience detecting errors might make Droe's evaluators more reliable than those of Napoles' study. Also, the majority of Napoles' musician participants identified their musical experience as instrumental rather than vocal. This could have inhibited their ability to find errors while using a vocal score, with which they might have been unfamiliar.

Conductors are likely the people most closely associated with the score in the performance classroom. One of the primary interactions a conductor has with the score is during score study. Silvey (2011) studied the effects of score study on novices' conducting and rehearsing and found three characteristics that emerged that marked a conductor who had studied the score. The results found that these conductors used more meaningful and instrument-specific eye contact, exhibited greater confidence, and used more effective gestures while conducting and rehearsing. Springer (2013) investigated the effect of the type of score a conductor used on their ensemble's performance quality. These results suggest that there is no significant difference

between conductors using a full score, condensed score, or no score at all on their ensemble's performance.

Much more of the research on the musical score in relation to conductors has been focused on its impact on their ability to detect performance errors. Grunow's (1980) findings suggest that score preparation with or without a correct aural example has no effect on a conductor's ability to detect performance errors. Grunow's results conflict with a study by Crowe (1996), who found score study with a correct aural example to be the best form of score preparation for beginning conductor's error detection ability. Other research has shown that musicians and conductors become less accurate at detecting performance errors as the number of voices increases in the score (Byo, 1997; Mount, 1982). These findings offer insight to another study in which beginning conductors reported that they felt that using a simplified and condensed score was helpful (Wine, 1995).

While there has been research dedicated to studying the effects of the score on conductors and judges, there is a dearth of research on how it affects performers. This is because musicians in an instrumental performance classroom rarely, if ever, see the score. Typically, musicians never see anything other than their own line of music. This places the onus of reading and communicating score information on the conductor. The only extant study that closely relates to the current investigation is a recent experimental study by Brittin and Confredo (2015). These researchers studied the effects of single versus multiple line notation small group performance outcomes and self-directed rehearsal procedures of wind instrumentalists. In this study, 36 music education majors from two universities were grouped into quartets on their secondary instruments. These quartets were provided with two medium-level difficulty compositions, one lively and one lyrical. Music was presented as either a single- or multiple-line music score.

Quartets sight read, rehearsed for three minutes, and then performed each piece. Both the sight-reading and final performances were rated by 70 different music majors on a 1-10 scale. The findings suggested that the multiple-line score had a significant impact on the final performance of the lyrical selection, but not the lively selection or the sight-reading performances. Rehearsal procedures were also analyzed in this study, showing the quartets using a single-line musical score spent much more time seeking score information and confirming roles within the composition than did the quartets using multiple-line scores. The results of this study suggest that even in a short amount of rehearsal time, giving musicians access to more score information may help the performance quality, particularly in more lyrical selections.

Need for Study

Constructivist theory of learning seeks to engage students in the active construction of meaning through complex and authentic problems presented in a holistic context. Research has also shown that the students of teacher with a constructivist perspective have a deeper understanding of music (López-Íñiguez & Pozo, 2014). Gestalt psychology lends to constructivism its idea of the whole as separate from its parts. Constructivist education requires that the students be presented with an authentic gestalt from which they can construct their own meaning. The musical score is a visual representation of the aural gestalt in music, if not a gestalt itself.

Research has shown that conductors spend a great amount of time giving their ensembles score-related information prior to sight-reading (Casey, 1988). Another study suggests that performers and conductors need to communicate about their part's interaction with the piece as a whole (Ginsborg, Chaffin, & Nicholson, 2006). This type of dialogue cannot happen unless all parties involved in the communication have access to the material being discussed. Research also

suggests that the best way to develop an aural image of the music is to read and listen to all parts of the score simultaneously (Hansen, 1961). In order to structure the performance classroom to give students the greatest chance at developing higher-level musicianship and problem-solving skills, they need access to the complex and raw problem of the score.

Purpose Statement

The purpose of this study was to evaluate the effect of providing band students with a simplified score on their performance quality and perceptions of their experience.

The following research questions were addressed:

1. Does providing band students with a simplified score affect their performance quality?
2. Does providing band students with a simplified score affect their perceptions of their experience?
3. How are teaching methods affected when students are provided with a simplified score?

CHAPTER 3:

METHOD

The purpose of this study was to evaluate the effect of providing band students with a simplified score on their performance quality and perceptions of their experience. In order to measure both performance quality and student perceptions of their experience, a quantitative-qualitative mixed-methods approach was used. The independent variables were (a) the type of score provided to students and (b) whether the performance was before or after the allotted rehearsal time. The dependent variables were the performance quality as rated by professional music educators, observed student behaviors and written reflections on their experience, and observed teacher methods employed in rehearsals.

Participants

Subjects were students ($N = 38$) enrolled in two intact high school band ensembles at two different K-12 parochial schools in the Midwest. Band A had 16 students and Band B had 22. These bands were selected based on convenience to the researcher, willingness of the collaborating teacher, and for their similarity in size. Both schools also regularly performed a similar level of repertoire and their ensembles met two or three times per week. Parental consent was gathered for each subject prior to participation in the study. Subjects were surveyed (Appendix A) to determine the amount of musical training in their background. Subjects had been enrolled in band an average of 4.6 years (SD = 1.9) and had played their current instrument an average of 4.3 years (SD = 2.1). Only 22% of subjects had ever taken private lessons on their instrument for a period of more than six months. Because piano students and choir students have had experience reading a multiple-line score, students were asked whether or not they had been enrolled in choir in high school, or taken lessons on another instrument. Forty-nine percent of

subjects had taken piano lessons, and 46% of subjects were or had been enrolled in choir during high school.

The author of the current study was the instructor of one participating band and the collaborating instructor is a colleague. Effort was made to reduce bias, as the author's participation in the study could be a threat to reliability. Both instructors used similar teaching methods in the classroom but, by nature of being individuals, differed frequently in their instruction. This aspect of the study was not controlled, but it was observed. The time allotment of teaching methods was noted during the rehearsals of this study as another dependent variable.

Performance recordings were sent to 45 conveniently chosen current or retired professionals in the field of music education via email. Raters ($N = 33$) were those music educators who responded to a recruiting email (Appendix B) and submitted their ratings via a Google Form (Appendix C) within the allotted time frame. A substantial number of music educators were chosen as raters in this study to obtain more reliable responses.

A nonrandomized control group pretest-posttest design was selected for the quantitative portion of this study (Isaac & Michael, 1971). Ensembles were used as their own controls. The experiment was comprised of two phases. In the first phase, each band recorded a pretest and posttest while viewing traditional part notation. In the second phase, the same bands recorded a pretest and posttest while viewing the experimental simplified score of a different piece. Two compositions of similar style and difficulty were used and their order of presentation was varied to control for maturation and history effects.

The qualitative portion of this study consisted of a survey designed to prompt students to reflect on their experience while learning and performing the selected repertoire (Appendix D). In addition to the survey data collected, each rehearsal was audio and video recorded to allow

observation of student behaviors and comments as well as teaching methods employed by the instructor.

Materials

Two published pieces of quality concert band literature were chosen for this study based on the level of repertoire the ensembles regularly perform. Lyrical selections were chosen in place of more lively material based on research that suggested the effect might be more significant with lyrical selections (Brittin & Confredo, 2015). *Country Wildflowers* (Daehn, 1998) and *Lullabye* (Standridge, 2009) were the pieces chosen after consulting an experienced band clinician to ensure quality and comparable difficulty (M. Bergee, personal communication, November 18, 2015).

Finale notation software was used in preparation for this study to reduce the scores of the chosen literature to simplified six-line scores (Appendix E) to present to students. Simplified scores were chosen over presenting the full conductor's score based on research that has indicated that musicians read music less accurately as the number of lines in a score increases (Byo, 1997; Sheldon, 1998; Wine, 1995). All efforts were made to minimize the number of lines in the simplified score while still representing the musical gestalt. All score information was retained in the simplification and the individual part was kept at the top of the staff system based on research that suggested students' eyes are frequently drawn to the top line of multiple-line scores (Sheldon, 2004). Scores were transposed into the key of each instrument's part to be more conducive to students making harmonic connections.

Participating teachers used a USB compressor microphone set up in the front of the classroom facing the ensemble to record all pretests and posttests. A one-minute sample was extracted from each recording after the completion of the first few phrases of each composition.

Audio file compilations were compressed to MP3 files before submitting them to raters to adjust the file size for that of an email attachment. Video recording of each rehearsal and recording session was performed by a digital video camera set up on a tripod in the front corner of the classroom facing the ensemble in a way that allowed a clear view of all students.

Raters used a Google Form (Appendix C) to rate performance recordings on a 1-10 scale (1 = poorest quality; 10 = best quality). The form was embedded in an email and sent to raters with an audio file attached containing instructions, followed by the band performances to evaluate. Recordings were be presented in counterbalanced order to control for order effect.

A qualitative survey (Appendix D) was given to the subjects immediately following each posttest recording to collect their reflections on the experience of learning the music they had just completed. The survey was given to another ensemble at one of the participating schools and adjusted based on feedback. Based on two different trials with previously learned repertoire, a journal format was selected rather than question and answer. The survey was intentionally left open-ended to prompt the raw narrative data a qualitative survey can retrieve.

Procedures

Permissions to complete this study were obtained from both the school districts and administration from each participating school before any research began. The researcher also collected signed consent forms from parents of the subjects involved. Instructors administered a survey of participating subjects about their musical training background prior to beginning research.

The experiment took place over twelve class periods in two phases. The first six-day phase used traditional part notation and the second six-day phase used the experimental simplified score. On the first day of phase one, participating instructors set up the microphone

and video camera so that rehearsals could proceed without interruption. Once the students were tuned and had performed a few basic warm-up exercises, instructors handed out the music with single-line scores. Students were given 2 minutes to orient themselves with the music while the instructor pointed out score information such as key changes, tempo, and expression markings. At this point the instructor used the microphone to record a sight-reading of the piece with the entire ensemble without stopping. This was a procedure subjects were familiar with, as both participating instructors had done this prior to the current study with other repertoire. At this point instructors informed students of the posttest recording date to take place four class periods later.

After the pretest recording, instructors immediately began their first 15 minutes of rehearsal time. Instructors used whatever methods they traditionally use to teach a piece of music. Each of the following five class periods began with another 15 minutes of video recorded rehearsal of the piece after students were tuned and prepared to play. On the sixth and final class period of phase one, the instructors set up the microphone before class again. Once the final 15 minute rehearsal period had elapsed, instructors used the microphone to record the ensemble's performance of the piece without stopping. Immediately following the posttest recording with the traditional parts, instructors handed out the student reflections survey and collected them when students had finished.

Phase two of the experiment replicated these same procedures over the next six class periods with students using the experimental simplified score. Instructors used any method they deemed appropriate for instruction including teaching methods made possible by students possessing more score information. Instructors kept all collected data until the end of the study,

at which time all data were collected and compiled by the researcher. Class periods for each phase were consecutive within the bounds of the school calendar.

Due to a few equipment malfunctions, a portion of each school's rehearsals were not recorded, resulting in a loss of observable rehearsal time. A total of 288 minutes of rehearsal were successfully recorded out of the 360 minutes that actually took place. These malfunctions also resulted in an imbalance in the observable rehearsal time between baseline (135 minutes) and treatment (153 minutes) conditions, while School A and School B maintained an equal amount (144 minutes) of observable rehearsal time.

There were a total of eight audio recordings of pretests and posttests, four from each ensemble: (1) *Country Wildflowers* Band A pretest with traditional parts, (2) *Country Wildflowers* Band A posttest with traditional parts, (3) *Lullabye* Band A pretest with experimental scoring, (4) *Lullabye* Band A posttest with experimental scoring, (5) *Lullabye* Band B pretest with traditional parts, (6) *Lullabye* Band B posttest with traditional parts, (7) *Country Wildflowers* Band B pretest with experimental scoring, and (8) *Country Wildflowers* Band B posttest with experimental scoring. A one-minute sample was drawn from each of the recordings immediately following completion of the first few phrases of each composition. This decision was based on a similar study (Brittin & Confredo, 2015) in order to avoid rater fatigue while still maintaining performance integrity. Audio recordings were compiled into four files for presentation to raters in four counterbalanced orders: Alpha (1, 5, 2, 6, 3, 7, 4, 8), Beta (5, 1, 6, 2, 7, 3, 8, 4), Charlie (4, 8, 3, 7, 2, 6, 1, 5), and Delta (8, 4, 7, 3, 6, 2, 5, 1). These orders were created to ensure the listener did not hear the same ensemble or same song twice in a row. Each recording was introduced by its title followed by a two second pause for raters to find the appropriate response area of the form, then presented. A silent period of 10 seconds was given at

the end of each recording excerpt to allow raters to evaluate the performance and mark the corresponding rating number. Each performance compilation was preceded by an audio introduction to the study and instructions on how to use the form (see Appendix F). Performance compilations and instructions were emailed to raters with a link to the Google Form (Appendix C), which prompted them to indicate which coded compilation order they received and then rate the recordings as they heard them introduced.

CHAPTER 4:

RESULTS

The purpose of this study was to evaluate the effect of providing band students with a simplified score on their performance quality and perceptions of their experience. There were three factors studied: (1) performance quality, (2) student perceptions of their experience, and (3) the instructors' use of teaching methods. Because of the nature of data to be collected, a mixed-methods approach was chosen. The results of this study are presented below as they relate to each of the factors studied.

Quality of Performance

Both pretest and posttest recordings were made by each school for both the baseline and treatment phases totaling eight recordings. A one-minute excerpt was sampled from each recording after the first few phrases of the piece were completed in an effort to capture an accurate representation of the performance. These eight excerpts were arranged in a counterbalanced order and sent to 45 current or previous professional music educators. Thirty-three educators responded ($N = 33$) and rated each of the eight excerpts on a 1-10 scale (1 = poorest quality; 10 = best quality) providing 264 total data points.

The design of the experiment used three independent variables: (a) Participating School, (b) Score Type, and (c) Pretest-Posttest. Music educator ratings were summed and analyzed with a 2 x 2 x 2 Analysis of Variance (ANOVA) to determine the effect of these variables on the performance quality. Alpha level was set a priori at .05.

Analysis revealed there was a significant main effect for Participating School, F (1, 256) = 12.44, $p < .001$. In general, School B recordings received significantly higher ratings than School A recordings. There was also a significant main effect for Pretest-Posttest, F (1, 256) = 191.76, $p < .001$. As would be expected, posttest recordings were rated significantly higher than pretest recordings. There was no significant main effect observed for Score Type, F (1, 256) = 5.76, $p = .132$. Table 1 contains the list of means for each variable.

Table 1

Mean Ratings of Independent Variables

Variable	M	SD
School A	4.10	1.84
School B	4.79	1.93
Pretest	3.59	1.65
Posttest	5.30	1.78
Traditional Parts	4.30	1.74
Simplified Score	4.59	2.07

Results of the 2 x 2 x 2 Analysis of Variance (ANOVA) were also evaluated for any significant interactions between the independent variables. There was a significant Participating School and Score Type interaction, F (1, 256) = 5.59, p = .019. School B recordings using the simplified score received significantly higher ratings than the other condition combinations (See Figure 1).

School	Score Type	M	SD
A	Traditional Parts	4.18	1.92
	Simplified Score	4.02	1.76
B	Traditional Parts	4.41	1.54
	Simplified Score	5.17	2.20

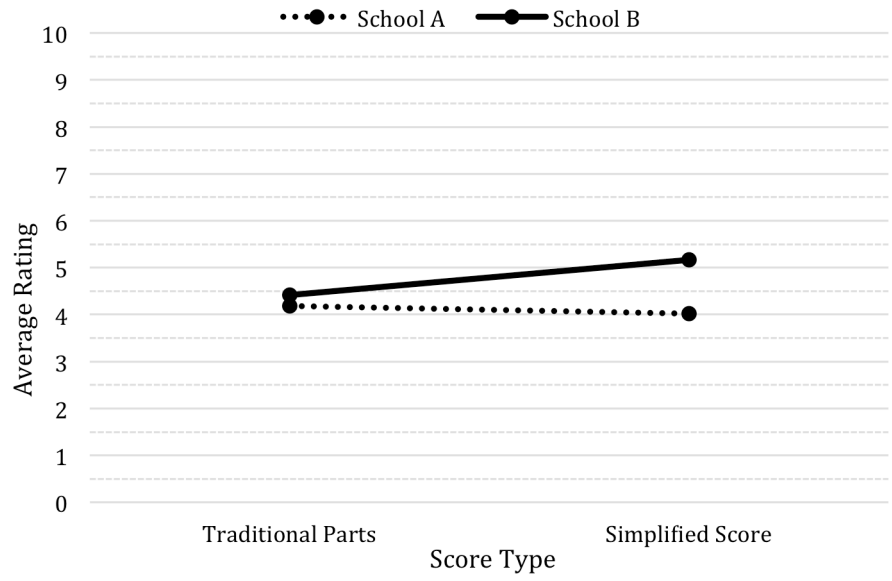

Figure 1: Mean Ratings of Participating Schools by Score Type

There was also a significant Participating School and Pretest-Posttest interaction, F (1, 256) = 4.22, p = .041. As expected, both schools improved from pretest to posttest; however, the improvement was greater for School A (See Figure 2).

School	Test	M	SD
A	Pretest	3.05	1.40
	Posttest	5.15	1.61
B	Pretest	4.14	1.71
	Posttest	5.44	1.93

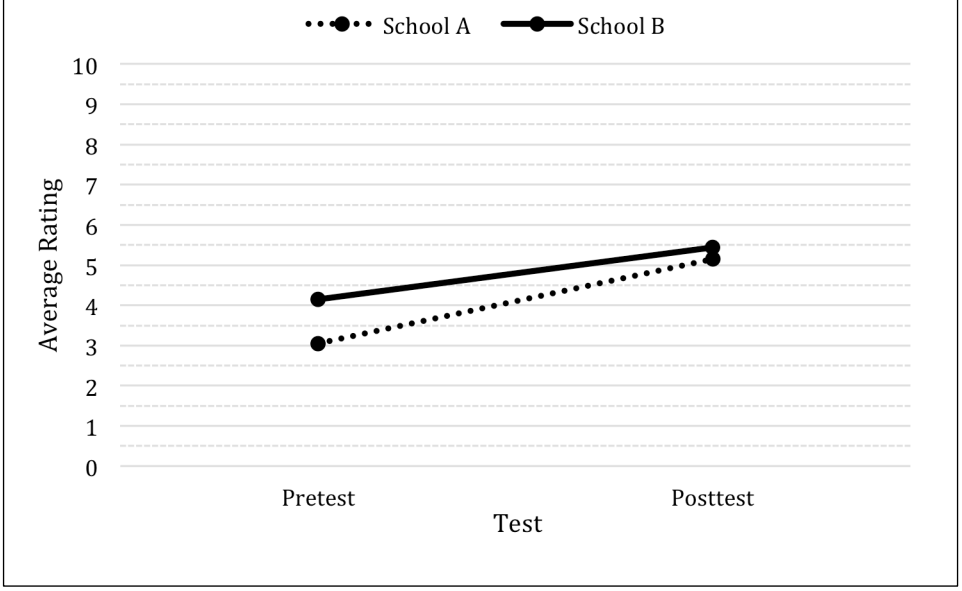

Figure 2: Mean Ratings of Participating Schools by Test

Another significant interaction was between Score Type and Pretest-Posttest, F (1, 256) = 6.74, p = .010. For the pretest, the traditional parts recordings received higher ratings than simplified score recordings. However, for the posttest, simplified score recordings received higher ratings than the traditional parts recordings. While both score types improved from pretest to posttest recordings, the improvement was greater for simplified score groups (See Figure 3).

Score Type	Test	M	SD
Traditional Parts	Pretest	3.70	1.76
	Posttest	4.89	1.50
Simplified Score	Pretest	3.49	1.53
	Posttest	5.70	1.95

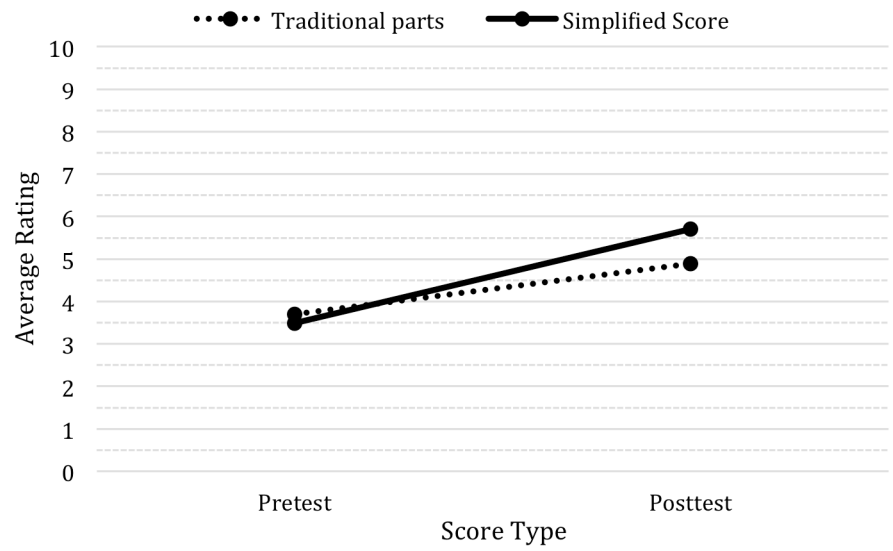

Figure 3: Mean Ratings of Score Types by Test

Student Perceptions of Their Experience

Participants in the study were high school band members from two small parochial schools in the Midwest. Both bands were comprised of students in grades 9-12 who varied greatly both in years of experience performing in a band and in years playing their current

instrument. Both bands met two to three times per week for a 40-minute rehearsal. This study was conducted in the second semester of the school year, when most students had been enrolled for at least one semester.

In order to evaluate student perceptions of their experience, an open ended survey was administered immediately after the posttest of both the baseline and treatment phases at each school. Students were encouraged to write down their thoughts and opinions about their experience learning and performing the piece.

Survey responses were separated into 237 separate comments (Baseline = 118; Treatment = 119; School A = 111; School B = 126) and coded to identify trends. Codes were then condensed into three categories.. The differences between the percentages of positive and negative comments in each category were evaluated by score type and by school (see Table 2) for statistical significance ($p < .05$) using a two-sample independent t-test. Neutral comments were not analyzed, but were still included in the total number of comments The categories were Experience, Opinions of the Simplified Score, and Comments about a "Part" vs "Whole". A list of code definitions is provided in Appendix G.

The open ended survey allowed students to express as much or as little as they desired as they reflected on their learning and performing experience. Though students differed in the way they described their experience, their thoughts and opinions were readily categorized. Below are a few examples of student comments from each category of response.

- Experience
  - "It was hard to learn and was difficult to understand."
  - "I liked learning the piece because it was an interesting sound when we all played together."

  - "I didn't like it. Boring trombone part."
  - "A little difficult to perform finally because of feeling the pressure of being recorded but was fun and fun to see how much the band improved."
- Opinions of the Simplified Score
  - "It was easy to not get lost because I could see where other instruments played."
  - "It would have been helpful to have the lines labeled with what instrument played it, so I would be able to listen for it better."
  - "I enjoyed it. I didn't like turning the pages."
  - "The composition was great. I really liked how it was really peaceful. Seeing what other people were playing was cool. I was familiar with all of the notes."
- Comments about a "Part" vs "Whole"
  - "Very enjoyable. The parts fit together well and was very interesting to understand and experience this interaction better."
  - "I really liked that it never went extremely high, because I like the deep clarinet sound. It had a nice flowing sound!"
  - "I like the chorus parts. Where the key change set in was a good shift."
  - "Nervous because my section had a lot of solos."

There were no significant differences in the percentage of comments between score types. However, as shown in Table 2, surveys from School A had a significantly higher percentage of positive comments and significantly lower percentage of negative comments than surveys from School B. The percentage of "whole" comments was also significantly higher from School A than from School B. Regarding whether or not students liked the simplified score, analysis revealed that there was a significantly higher percentage of comments mentioning the

simplified score ($n = 41$) that Liked the Simplified Score as opposed to Disliked the Simplified Score.

Table 2

Percentage of Coded Survey Comments by Score Type and Participating School

	Score Type		School	
Code	Traditional Parts	Simplified Score	A	B
Positive Experience	83.90%	83.19%	89.19%	78.57%
Negative Experience	15.25%	15.13%	9.01%	20.63%
Liked Simplified Score		21.85%	11.71%	10.32%
Disliked Simplified Score		12.61%	4.50%	7.94%
"Part" Comments	24.58%	15.97%	22.52%	18.25%
"Whole" Comments	27.97%	32.77%	38.74%	23.02%

Instructors' Use of Teaching Methods

Each 15-minute rehearsal was intended to be video and audio recorded to evaluate teacher methods and gather any other relevant qualitative data. Due to a few equipment malfunctions, a portion of each school's rehearsals were not recorded, resulting in a loss of observable rehearsal time. A total of 288 minutes of rehearsal was successfully recorded out of the 360 minutes that actually took place. These malfunctions also resulted in a variance in the observable rehearsal time between baseline (135 minutes) and treatment (153 minutes) groups, while School A and School B maintained an equal amount (144 minutes) of observable rehearsal time.

Rehearsal recordings were reviewed to identify teaching methods employed by the instructor and to determine how the time was distributed between these methods. Time spent on each method was recorded in seconds then simplified to minutes to allow more accurate analysis. Identified methods were Full Group Rehearsal, Run Through, Drill Practice, Isolation, Cross-Training, Lecture, Discussion, Listening, Modeling, and Singing (see Table 3 for definitions).

Table 3

Definitions of Identified Teaching Methods

Method		Definition
Full Group Rehearsal	-	Rehearsing segments of more than four measures with the entire group, pausing to give instruction, then resuming rehearsal
Run Through	-	Performing more than half of the piece through to the end without stopping
Drill Practice	-	Practicing a short section of one-to-four measures repeatedly in varied ways
Isolation	-	Singling out an instrument or group of instruments from the entire band to fix an error within that group
Cross-Training	-	Intentionally directing students' attention to other parts in the band
Lecture	-	Talking to students about what is desired or occurring
Discussion	-	Talking with students about what is desired or occurring
Listening	-	Listening to a recording as an aural example or for evaluation
Modeling	-	Performing the desired musical quality either with voice or on an instrument
Singing	-	Having the band members sing a part of their music

The percentages of the observable time for each teaching method were totaled and the differences between the percentages were evaluated by score type and by school (see Table 4) for statistical significance ($p < .05$) with a two-sample independent t-test.

Three significant differences in the percentage of time spent on teaching methods were identified between groups using traditional parts and groups using a simplified score. First, instructors spent significantly more rehearsal time on Drill Practice when teaching a band using traditional parts than a band using the simplified score. Second, the instructor spent significantly less rehearsal time on Lectures when teaching a band using traditional parts than a band using the simplified score. Lastly, the instructor spent significantly more rehearsal time on Listening when teaching a band using traditional parts than a band using the simplified score.

Two significant differences in the percentage of time spent on teaching methods were also identified between participating schools. The instructor at School A spent significantly less

rehearsal time on Full Group Rehearsal than School B. However, the instructor at School A spent significantly more rehearsal time on Drill Practice than School B.

Table 4

Percentages of Time Spent on Teaching Methods by Score Type and Participating School

	Score Type		School	
Method	Traditional Parts	Simplified Score	A	B
Full Group Rehearsal	39.35%	49.59%	34.91%	54.67%
Isolation	25.50%	18.51%	26.74%	23.77%
Run Through	20.43%	16.59%	21.83%	14.26%
Cross Training	4.39%	10.28%	9.65%	5.38%
Drill Practice	7.58%	2.35%	9.08%	0.52%
Discussion	3.32%	7.68%	6.88%	4.40%
Modeling	3.16%	1.81%	2.38%	2.50%
Lecture	0.00%	5.12%	3.38%	2.06%
Singing	0.32%	0.00%	0.30%	0.00%
Listening	2.67%	0.00%	2.50%	0.00%

CHAPTER 5:

DISCUSSION

If conceptual understanding is a high priority for music education, constructivist theory suggests there should be ample opportunities for students to encounter musical problems in the context of the whole. One of the representations of the musical whole in the performance classroom is the score. However, the conductor is typically the only person who is privileged to this information in the instrumental classroom. Research has produced mixed results as to what effects the score might have on conductors (Crowe, 1996; Grunow, 1980; Silvey, 2011; Springer, 2013), and judges (Droe, 2012; Napoles, 2009; Wapnick, Flowers, Alegant, & Jasinskas, 1993), but only one study has investigated the effects of a providing a score to performers (Brittin & Confredo, 2015).

The purpose of this study was to evaluate the effect of providing band students with a simplified score on their performance experience. This was measured both in the quality of the performance as well as their perceptions of their experience. The effect score type had on teaching methods was also investigated as it contributed to the students' experience. The results of this study suggest the simplified score had very little impact on student perceptions of their experience. Observations of teaching methods also revealed few significant effects and are most likely attributable to teaching style rather than score type. No significant effect of the simplified score on performance quality was found, but a significant interaction between improvement and score type warrants further investigation. Three research questions guided this study. The results of the study and discussion follow each of the questions below.

Research Questions

1. Does providing band students with a simplified score affect their performance quality?

Pretest and posttest recording ratings were summed and analyzed to evaluate any effect of score type. The results revealed that simplified score recordings were rated lower than traditional parts recordings for pretest, but higher for posttest. Overall, there was more improvement shown from pretest to posttest with the simplified score than with traditional parts. Since the format of the simplified score was new to all students involved, it would be expected that sight-reading performances would receive lower ratings. Much of sight-reading depends on being able to navigate the music quickly and anticipate what comes next. It is likely that the new format made this process more difficult for students during sight-reading. Many comments from the student surveys reported finding the new format difficult at first, but easier as they got used to it over the rehearsal time. The higher ratings of posttest recordings for the simplified score groups suggest that once students adjusted to the new format, they were able to use the simplified score to perform better than those groups using traditional part notation. In short, the results suggest there may be more learning potential when using the simplified score and warrant further investigation.

It is important to note that this apparent effect was not the case for each school. While the overall summed ratings revealed higher scores for simplified score groups, School A actually received lower ratings and improved less when using the simplified score. It is interesting that School B learned a slower piece with the simplified score and School A learned a faster piece with the simplified score. The fact that School B received higher ratings than School A could therefore support the findings of Brittin and Confredo (2015) that slower, more lyrical pieces show greater improvement with multiple line notation.

Several differences in the performance quality trends were noted between schools. Since two schools participated in the study and had different instructors, the type or quality of

instruction was not controlled. It is possible that though the simplified score has potential to positively affect performance quality, it may depend on various other factors not measured in this study.

One factor that may have contributed to the negative effect the simplified score had on School A ratings was the length of the piece. School B learned *Country Wildflowers* with the simplified score, whereas School A learned *Lullabye* with the simplified score. Since *Country Wildflowers* is a short piece (48 measures) the score fit on two pages. *Lullabye* is a significantly longer piece (132 measures) and the score fit on six pages. This difference caused School A to deal with page turns, whereas School B did not. Comments from the student surveys and video analysis from School A both revealed a number of complaints about having to turn pages during the performance.

In addition, though the pieces used in this study were chosen for their many similarities, they are in fact different pieces that present different challenges to students. Since it is impossible to learn the same piece twice, this was a necessary provision. However, the consistency of the results may have been hindered by the differences in literature. In any case, the inconsistencies do much to undermine the generalizability for other findings in this study.

2. Does providing band students with a simplified score affect their perceptions of their experience?

In the current study, providing students with a simplified score had no significant effect on the amount of positive or negative comments in the surveys. Students appear to have had an overwhelmingly positive experience with both score types at a ratio of over 5:1. Comments that were coded as having negative experience included comments about nerves, difficulty of the piece, and dislike of the score format. Comments about the difficulty of the piece varied from

boredom to inadequacy. For example, one student wrote that they did not like the piece because of the boring trombone part. However, another student commented that they wished they could have played the bells part more accurately. These comments referred to the same piece, revealing not only the diversity in level of difficulty that might exist within the piece, but also to the diversity of ability level in the bands.

Further analysis of the data suggests School A had a significantly more positive experience than School B. This finding was interesting considering School B averaged higher ratings overall than School A. It would seem then that neither score type nor actual performance quality had an effect on students' perceptions of a positive or negative learning experience. Some comments revealed an anxiety about the recording process from School B. One student wrote, "It was a little scary when performing it, because we had to play it carefully and correctly while being recorded." Since this process might have been new to some students from School B, it could have contributed to a lower rated performance for their baseline phase.

Comments from the treatment groups mentioning the simplified score were also significantly more positive in nature. Most of the comments from students who liked the simplified score mentioned the ability to follow along with the other parts as they played. This was usually specific to not getting lost or finding entrances. One student wrote in relation to the simplified score, "[I] didn't get lost so much and gave me a better sense of how the group works as a whole." Another wrote that "seeing everyone's parts was good because I could just follow along instead of counting." While there was no significant difference in how positive the experience was perceived, students enjoyed using the simplified score and the many benefits it offered.

Several of the comments coded as disliking the score were in relation to the page turns required of School A. One student wrote, “Turning the pages were difficult. Especially in one spot. I had to memorize 4 or 5 measures of music just so I wouldn't miss anything.” A few of the comments coded as disliking the score actually pertained to the lack of instrument names on the simplified score. These students were not unhappy because there was too much information, but not enough. However, the majority of Dislike comments related to the difficulty navigating the new format and having too much information on the page. One student wrote, “I liked the first layout better. This one had a lot going on. The first one was simpler and easier to read.” These results, mentioning both confusion and convenience, could possibly be attributed to the wide range of ability levels found in the bands.

There were several comments from the survey responses that stood out in particular in relation to a gestalt type of thinking about the composition. For example, one student wrote that “The composition is very beautiful! And I really enjoyed the way the different parts interacted.” This focus on the interaction of parts is very different from comments such as, “It was easy to understand. I enjoyed playing it because it was in the range I am most comfortable with.” In comments of the second type, the students was focused only on their part’s range when thinking about the experience. Probably not so coincidentally, the first comment was from a student using the simplified score, whereas the second comment was from a student using traditional part notation.

However, analysis of the surveys revealed that the score type had no significant effect on the ratio of “Part” to “Whole” comments. The reason this code was included was to evaluate any difference the visual gestalt might have on students’ focus of attention. There was a variance between schools in in this area of the study as well. School A had significantly more “Whole”

comments than did School B. This is likely the result of factors beyond the scope of this study. It must be noted that though there was no significant difference in comments about the part or whole, this does not imply that there was no difference in experience. Since the survey was left open ended and no questions were asked directly about their focus of attention or comprehension of the musical gestalt, no conclusions should be inferred from these results.

3. How are teaching methods affected when students are provided with a simplified score?

The results of this study show that when using the simplified score, instructors spent more time on Lecture and less time on Drill Practice and Listening. As has already been mentioned, the differences in the instruction between the two schools were not controlled in this study. The results may not accurately portray the effect of score type on the instruction because of the small sample size of this study. For example, the fact that instructors used significantly less Listening time with the simplified score is somewhat negated by the fact that there was only one instance of Listening in the entire study. The extent to which an instructor alters their pedagogy because of a new tool depends entirely on the will of the instructor. Each instructor, though using mostly the same methods, had different teaching styles which inevitably affected the amount to which they changed their instruction based on the new tool of the simplified score.

Limitations and Strengths

The current study was designed to evaluate the effect of giving students a simplified score on their performance quality and learning experience in an authentic classroom setting. As in any study performed in an authentic classroom setting there were many factors that were not controlled, but expected to be consistent. The scale of this study is quite small and therefore the results should not be generalized until further investigated on a larger scale. Since both bands studied were small parochial school bands from the Midwest, members of the band represented a

diverse array of experience and ability levels that would not be present in larger band programs with multiple ensembles per school. Participating schools also had different instructors who had divergent approaches to using the simplified score in the classroom. While this may be reflective of any wide application of this teaching tool, the reliability of the current study was hindered by the lack of control in instruction type and quality.

There were also equipment malfunctions that caused some of the rehearsal time to be exempt from analysis of teaching methods. Data were calculated proportionally, but since instructors often vary their teaching methods from day-to-day, this may have altered the results of any effect the simplified score had on teaching methods.

The dearth of research on the effect of multiple line notation on students' performance quality and experience add significance to the results of this study. At the time of this study there was only one extant study (Brittin & Confredo, 2015) remotely similar in focus. Many dependent variables were considered in this study in an effort to present a more accurate picture of the effects the simplified score might have. Conducting this study in an authentic classroom environment also has the advantage of studying the independent variable in question in its full context. The necessity for contextual study of a problem is one of the reasons this study was conceived. It is only appropriate then, that the study design reflect the principles of the educational tool it is evaluating.

Implications

It is interesting to note that the results of previous studies on the effect the score has on both conductors (Crowe, 1996; Grunow, 1980; Silvey, 2011; Springer, 2013) and judges (Droe, 2012; Napoles, 2009; Wapnick, Flowers, Alegant, & Jasinskas, 1993) have also produced conflicting results. Reading a full or simplified score presents both difficulties and opportunities.

As the results of this study support, whether a student, conductor, or judge is drawn to the opportunities or the difficulties varies. The current study should be the basis for future inquiries into the effects of a simplified score on a performer's performance quality and experience.

Educators are constantly seeking new tools to better aid student comprehension. As has been discussed throughout this study, the need for context is key to conceptual learning. Presenting students with a simplified score is one means of communicating more context to the student. However, many educational tools used in the classroom are not founded on research or data of any kind. It is imperative that educators study the effectiveness of the tools used in the classroom, and the music performance classroom cannot be exempt.

The conflicting results of this study have shown that the effect of providing students with a simplified score on performance quality merits further investigation. Students in instrumental classrooms often depend solely on their ear or the words of the conductor to discern their part's role in the compositional whole. This lack of information denies students the opportunity to form their own conclusions about their role and to construct their musical understanding. While publishing music with all the score information on every part is impractical for many reasons, it is worth noting the potential for learning and improved performance quality that providing students with context might afford.

In the constructivist classroom, any opportunity to confront students with authentic problem-solving situations is an opportunity to let them construct their own understanding. The simplified score has use beyond the constructivist ideology, but fits into its framework seamlessly. Instructors have the task of presenting problems to students to solve in order to cultivate their learning. The current study has shown that instructors play a role in shaping how students engage with the tools available to them. While the effects the simplified score had on

participating schools' performance quality were conflicting, this may illuminate a need. Instructors, like students, are unfamiliar with students having more score information. They may need to develop new teaching methods to fully utilize the learning potential of the simplified score.

Suggestions for Future Research

Given the small scale of the current study, it is the suggestion of the researcher that future studies take place on a larger scale. In a larger school system there is an increased likelihood of having ensembles of comparable experience and ability levels which would allow more control of the experiment design. Any future studies should also take into greater consideration the variances between teaching styles. One way to counter this would be to select ensembles the same instructor is directing to allow more consistency in instruction type and quality. Another way to better control for this variance would be to provide a prescribed curriculum for teaching with a simplified score.

It was the focus of the current study to investigate performance quality and student perceptions of their experience. Future research should also consider investigating the effect of providing a simplified score to students on their musical understanding of the piece. Providing more score information to construct meaning from and more context to allow authentic problem-solving should merit an investigation of the effect on students' comprehension.

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APPENDICES

Appendix A - Student Background Survey

Student Musical Background:

Please answer the following questions in relation to your musical training background. There is no need to write your name on this survey, as your responses will remain anonymous.

1. How many years have you played your instrument?

2. Have you ever taken private lessons on your instrument for a period of at least 6 months?

3. How many years have you been enrolled in a school band program?

4. Are you or have you been enrolled in a choir during your time in high school?

5. Have you had any other formal musical training that lasted at least 6 months? If yes, please list the instrument and how long it (has) lasted.

Appendix B - Rater Recruiting Email

Your participation is requested

My name is Steven Hutchison, and I would sincerely like to invite you to participate in a study I am conducting with the Department of Music Education and Music Therapy at the University of Kansas.

As I many of you may have observed, band students can sometimes encounter difficulty understanding how their part fits into the composition as a whole when learning a new piece. The study we are conducting is to better understand how showing students a simplified score while they learn and perform a piece might affect their performance experience.

As a current or previous professional music educator, your participation will entail your completion of a survey in which you will be asked to rate provided recordings of band performance excerpts. Your participation is expected to take approximately 15 minutes to complete.

If you have any questions or would like more details regarding the study, please feel free to contact me by phone at (913) 268 7400 or by email at hutchison.music@gmail.com

If you are interested in participating in this study, please respond as soon as possible and I will contact you with the survey and instructions.

Thank you for your time,

Steven Hutchison
Midland Adventist Academy
6915 Maurer Rd.
Shawnee, KS 66217
913 268 7400
hutchison.music@gmail.com

Appendix C - Rating Form

Band Performance Rating

Use this form to rate the recordings presented in the audio file attached to this email.

*Required

Audio File: *

Please choose the name of the audio file attached to this email.

Recording 1 *

Please rate the quality of the Recording 1 on a scale of 1-10. (1 = poorest quality; 10 = best quality)

1 2 3 4 5 6 7 8 9 10

Recording 2 *

Please rate the quality of the Recording 2 on a scale of 1-10. (1 = poorest quality; 10 = best quality)

1 2 3 4 5 6 7 8 9 10

Recording 3 *

Please rate the quality of the Recording 3 on a scale of 1-10. (1 = poorest quality; 10 = best quality)

1 2 3 4 5 6 7 8 9 10

Recording 4 *

Please rate the quality of the Recording 4 on a scale of 1-10. (1 = poorest quality; 10 = best quality)

1 2 3 4 5 6 7 8 9 10

Recording 5 *

Please rate the quality of the Recording 5 on a scale of 1-10. (1 = poorest quality; 10 = best quality)

1 2 3 4 5 6 7 8 9 10

Recording 6 *

Please rate the quality of the Recording 6 on a scale of 1-10. (1 = poorest quality; 10 = best quality)

1	2	3	4	5	6	7	8	9	10
○	○	○	○	○	○	○	○	○	○

Recording 7 *

Please rate the quality of the Recording 7 on a scale of 1-10. (1 = poorest quality; 10 = best quality)

1	2	3	4	5	6	7	8	9	10
○	○	○	○	○	○	○	○	○	○

Recording 8 *

Please rate the quality of the Recording 8 on a scale of 1-10. (1 = poorest quality; 10 = best quality)

1	2	3	4	5	6	7	8	9	10
○	○	○	○	○	○	○	○	○	○

Submit

Appendix D - Student Reflections Survey

Reflective Journal Title: _____

Please write your thoughts about your experience with this piece.

Categories are provided to help you organize your thoughts.

The Composition

Learning the Piece

Performing the Piece

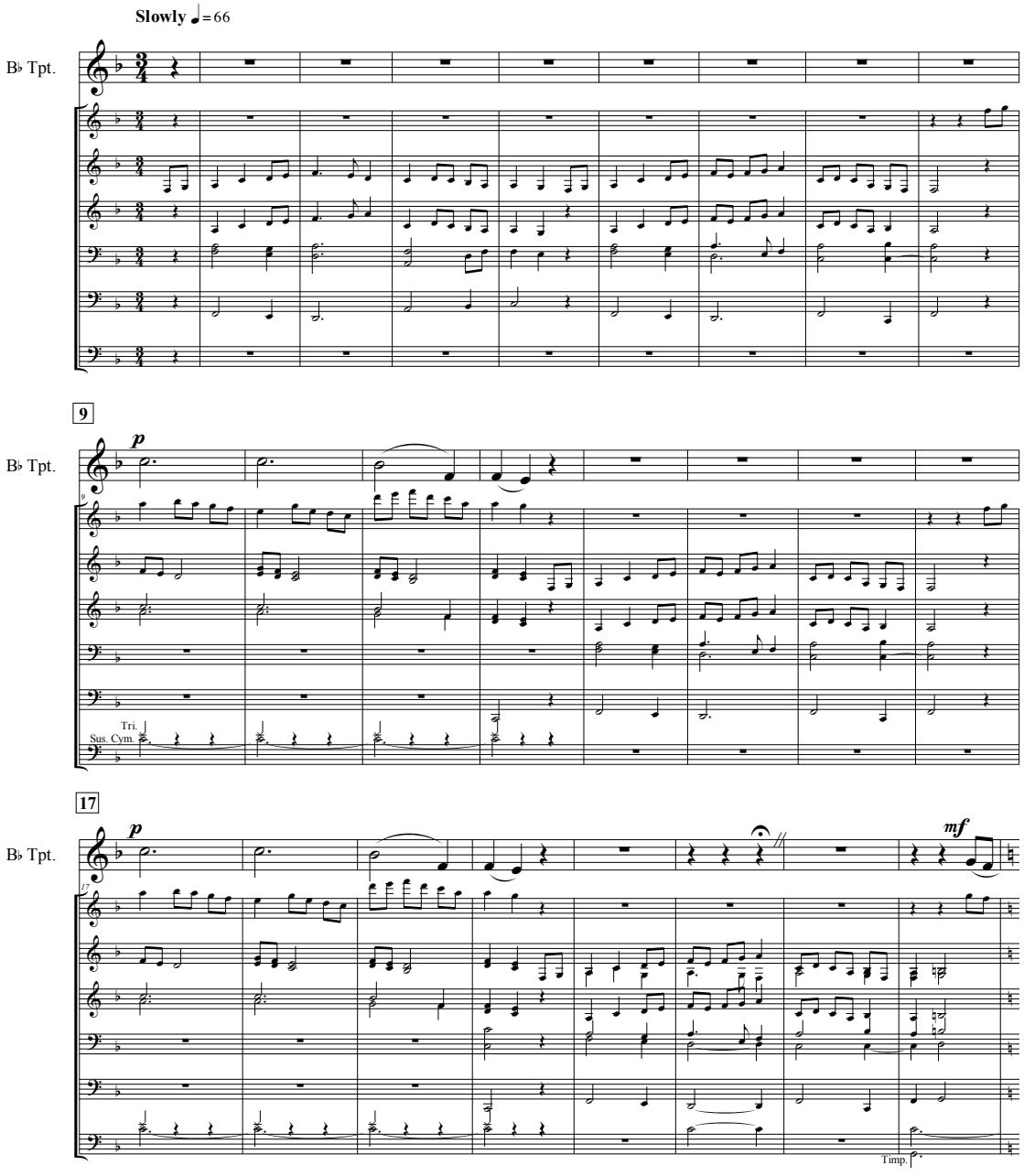
Other Thoughts

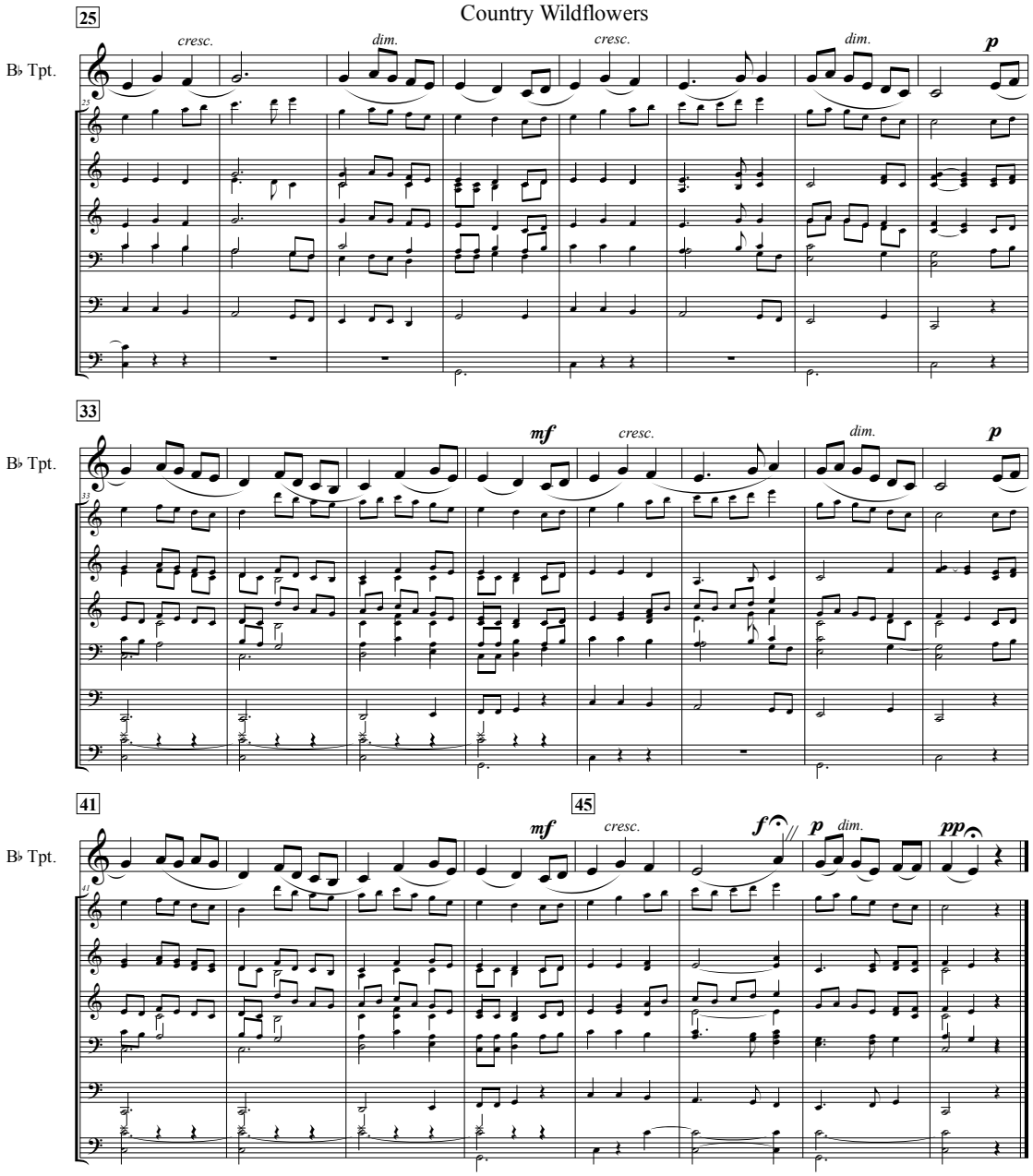
Appendix E - Simplified Score Example

B♭ Trumpet 1

Country Wildflowers

Larry Daehn




Country Wildflowers
25
B♭ Tpt.
cresc.
dim.
cresc.
dim.
p
33
B♭ Tpt.
mf
cresc.
dim.
p
41
45
B♭ Tpt.
mf
cresc.
f
p
dim.
pp

Appendix F - Transcript of Ratings Survey Instructions

Thank you for choosing to participate in this study. You will hear 8 one-minute excerpts of band music. Please use the corresponding question on the Google Form to rate each recording on a scale of 1 to 10, where 1 is the poorest quality and 10 is the best quality performance. You may stop at any time during the survey. However, in order to be included in the study you must complete all questions.

For each recording you will hear the title, followed by the excerpt. You will then have 10 seconds to rate the excerpt on the Google Form. Please ensure you have correctly selected the name of the audio file you were sent in the email.

We will now begin:

Recording 1

[2 seconds of silence]

[Recording 1 plays]

[10 seconds of silence]

(Repeat the previous 4 lines with each of the remaining recordings)

You have now completed the survey. Please ensure all recordings have been rated on the Google Form, and that you have selected the correct audio file name at the top of the form.

When you are finished, click “Submit” at the bottom of the form.

Thank you for your participation.

Appendix G - List of Code Definitions

Student Survey Comments

- Positive Experience or Negative Experience

  Comments contained positive or negative comments about the music, learning, or performance. Positive codes included Enjoyment and Achievement. Negative codes included Difficult, Boring, and Nerves.

- Liked Simplified Score or Disliked Simplified Score

  Comments from the treatment groups contained positive or negative comments about the simplified score. “Like” codes included Counting and Format. “Dislike” codes included Confusing and Impractical.

- “Part” Comments or “Whole” Comments

  Comments mentioned aspects of the music dealing with either one instrument’s part or the interaction of parts as a whole.

Appendix H - IRB Approval Letter

THE UNIVERSITY OF KANSAS
Research

APPROVAL OF PROTOCOL

February 15, 2016

Steven Hutchison
s415h244@ku.edu

Dear Steven Hutchison:

On 2/15/2016, the IRB reviewed the following submission:

Type of Review:	Initial Study
Title of Study:	The Effect of Providing Band Students with a Simplified Score on their Performance Experience
Investigator:	Steven Hutchison
IRB ID:	STUDY00003710
Funding:	None
Grant ID:	None
Documents Reviewed:	• Student Assent.pdf, • Parent-Guardian Consent.doc, • Information Statement for Raters.pdf, • New Submission Form.pdf, • Rater recruiting email.pdf, • Student Perceptions of Experience Survey, • Example of Experimental Simplified Score, • Raters Online Survey

The IRB approved the study on 2/15/2016.

1. Notify HSCL about any new investigators not named in the original application. Note that new investigators must take the online tutorial at https://rgs.drupal.ku.edu/human_subjects_compliance_training.
2. Any injury to a subject because of the research procedure must be reported immediately.
3. When signed consent documents are required, the primary investigator must retain the signed consent documents for at least three years past completion of the research activity.

Continuing review is not required for this project, however you are required to report any significant changes to the protocol prior to altering the project.

Please note university data security and handling requirements for your project:
https://documents.ku.edu/policies/IT/DataClassificationandHandlingProceduresGuide.htm

You must use the final, watermarked version of the consent form, available under the "Documents" tab in eCompliance.

Sincerely,

Stephanie Dyson Elms, MPA
IRB Administrator, KU Lawrence Campus

Human Subjects Committee Lawrence
Youngberg Hall | 2385 Irving Hill Road | Lawrence, KS 66045-7568 | (785) 864-7429 | www.research.ku.edu

Appendix I - Parent-Guardian Consent Form

Parent-Guardian Informed Consent Statement

The Effect of Providing Band Students with a Simplified Score on their Performance Experience

INTRODUCTION

The Department of Music Education and Music Therapy (MEMT) at the University of Kansas supports the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish your child to participate in the present study. You may refuse to sign this form and not allow your child to participate in this study. You should be aware that even if you agree to allow your child to participate, you are free to withdraw at any time. If you do withdraw your child from this study, it will not affect your relationship with this unit, the services it may provide to you, or the University of Kansas.

PURPOSE OF THE STUDY

The purpose of this study is to evaluate the effect of providing band students with a simplified score on their performance experience. This will be measured both in the quality of the performance as well as their perceptions of their experience.

PROCEDURES

Your student will learn and perform two pieces of band literature; one with standard single-line parts and one with an experimental simplified score. Two ensemble recordings will be made of each method and then rated by professional music educators. Data will be analyzed to determine whether a significant difference exists between the performance quality of the two methods. In addition, your student will fill out a reflective survey about their experience learning and performing each piece with a varied score type. This process will take 15 minutes from 12 regularly scheduled band class periods.

Rehearsals will also be video recorded to observe student and instructor behaviors in relation to the score type used. Both audio and video recording are required for participation in the study. You have the option to have the video or audio recording stopped at any time and thereby exclude your student from the study.

Video recordings will be analyzed by the investigator, Steven Hutchison of Midland Adventist Academy, and will be stored securely on a portable hard drive by your band instructor until completion of the study.

Audio recordings will be submitted to professional music educators who will listen to and rate performance excerpts. No identifiable information will be used from the recordings or presented to the rating music educators.

RISKS

No risks are anticipated for your student in this study other than that they may experience some mild difficulty navigating the simplified score. However, this should be no more difficulty than is associated with any new learning method or music format.

KU Lawrence IRB # STUDY00003710 | Approval Period 2/15/2016

BENEFITS

Students will gain experience performing two pieces of standard concert band repertoire and take part in beneficial self-reflection on their learning process. Students will also help contribute to the body of knowledge about how students best learn music.

PAYMENT TO PARTICIPANTS

Students will not be paid for their participation in this study or receive any extra credit in the class.

PARTICIPANT CONFIDENTIALITY

Your child's name will not be associated in any publication or presentation with the information collected about your child or with the research findings from this study. Instead, the researcher will use a study number or a pseudonym rather than your child's name. Your child's identifiable information will not be shared unless (a) it is required by law or university policy, or (b) you give written permission.

Permission granted on this date to use and disclose your information remains in effect indefinitely. By signing this form you give permission for the use and disclosure of your child's information, excluding your child's name, for purposes of this study at any time in the future.

REFUSAL TO SIGN CONSENT AND AUTHORIZATION

You are not required to sign this Consent and Authorization form and you may refuse to do so without affecting your right to any services you are receiving or may receive from the University of Kansas or to participate in any programs or events of the University of Kansas. However, if you refuse to sign, your child cannot participate in this study.

If you choose for your child not to participate in the study, they will still learn the same music and be involved in the rehearsals. They will not however use the experimental score notation. They will also not be in view of the video recordings or perform during the audio recordings.

CANCELLING THIS CONSENT AND AUTHORIZATION

You may withdraw your consent to allow participation of your child in this study at any time. You also have the right to cancel your permission to use and disclose further information collected about your child, in writing, at any time, by sending your written request to:

Steven Hutchison
Midland Adventist Academy
6915 Maurer Rd.
Shawnee, KS 66217
913 268 7400

If you cancel permission to use your child's information, the researchers will stop collecting additional information about your child. However, the research team may use and disclose information that was gathered before they received your cancellation, as described above.

QUESTIONS ABOUT PARTICIPATION

Questions about procedures should be directed to the researcher listed at the end of this consent form.

PARTICIPANT CERTIFICATION:

I have read this Consent and Authorization form. I have had the opportunity to ask, and I have received answers to, any questions I had regarding the study. I understand that if I have any additional questions about my child's rights as a research participant, I may call (785) 864-7429, write to the Human Subjects Committee Lawrence Campus (HSCL), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7568, or email irb@ku.edu.

I agree to allow my child to take part in this study as a research participant. By my signature I affirm that I am at least 18 years old and that I have received a copy of this Consent and Authorization form.

_____ _____
Type/Print Participant's Name Date

_____
Parent/Guardian Signature

[If signed by a personal representative, a description of such representative's authority to act for the individual must also be provided, e.g. parent/guardian.]

Researcher Contact Information

Steven Hutchison
Principal Investigator
Midland Adventist Academy
6915 Maurer Rd.
Shawnee, KS 66217
913 268 7400

Christopher Johnson
Faculty Supervisor
Department of MEMT
410 Murphy Hall
University of Kansas
Lawrence, KS 66045
785 864 9633

KU Lawrence IRB # STUDY00003710 | Approval Period 2/15/2016

Appendix J - Raw Ratings Data Prepared for ANOVA

Order: (1) alpha, (2) beta, (3) charlie, (4) delta
School: (1) A, (2) B
Condition: (1) Traditional Parts, (2) Simplified Score
Prepost: (1) Pretest, (2) Posttest

Order	School	Condition	Prepost	Rating
1	1	1	1	2
1	1	1	1	3
1	1	1	1	2
1	1	1	1	5
1	1	1	1	1
1	1	1	1	1
1	1	1	1	3
1	1	1	1	4
2	1	1	1	3
2	1	1	1	1
2	1	1	1	2
2	1	1	1	1
2	1	1	1	3
2	1	1	1	4
2	1	1	1	3
2	1	1	1	2
3	1	1	1	7
3	1	1	1	4
3	1	1	1	3
3	1	1	1	6
3	1	1	1	2
3	1	1	1	3
3	1	1	1	3
3	1	1	1	3
3	1	1	1	3
4	1	1	1	4
4	1	1	1	2
4	1	1	1	3
4	1	1	1	2
4	1	1	1	1
4	1	1	1	4
4	1	1	1	5
4	1	1	1	3
1	1	1	2	5

1	1	1	2	5
1	1	1	2	6
1	1	1	2	6
1	1	1	2	6
1	1	1	2	4
1	1	1	2	6
1	1	1	2	7
2	1	1	2	5
2	1	1	2	5
2	1	1	2	4
2	1	1	2	2
2	1	1	2	6
2	1	1	2	6
2	1	1	2	5
2	1	1	2	7
3	1	1	2	6
3	1	1	2	6
3	1	1	2	5
3	1	1	2	8
3	1	1	2	4
3	1	1	2	4
3	1	1	2	9
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